

## Notes on Bornean Mammals

by F. N. CHASEN

## Systematic.—

*Tupaia tana nitida* subsp. nov.*Sciurus prevosti banksi* subsp. nov.

When Mr. Boden Kloss and I wrote our paper on the mammals we collected in British North Borneo in 1927<sup>1</sup> lack of comparative material forced us to leave open a number of questions of systematic interest. It is now possible to deal with some of these owing to the generous action of Mr. E. Banks of Kuching who has kindly sent to Singapore all the relevant material belonging to the Sarawak Museum.

*Rattus concolor ephippium* (Jentink).

No colour distinction can be maintained between animals from various localities throughout Sarawak and those listed from the mainland and islands of north Borneo.

*Sciurus prevosti banksi* subsp. nov.

*Characters*.—Nearest to *S. p. caroli*<sup>2</sup> Bonhote, of Sarawak but much darker dorsally, the back almost black: black lateral stripe well developed. Feet blackish, not red.

*Colour*.—Upper parts, including the feet, black grizzled with whitish especially on the top of the head and shoulders which are therefore lighter than the back and feet on which the grizzling is very fine. White lateral stripe wide, spreading on the thighs as a broad patch: black lateral stripe, broad and conspicuous. Cheeks, grey: face, pale chestnut. Under parts very deep chestnut. Tail broadly annulate whitish and black, the general effect whitish grey.

*Type*.—Adult male, skin with skull inside, collected by C. Hose: labelled "Baram 1891". Raffles Museum No. 3935.

*Remarks*.—The type locality of *S. p. caroli* is the "Murudi River, Baram district": Murudi is on the Baram River about thirty miles, in a direct line, from the sea. Specimens in the Raffles Museum are from Balingian (about half-way along the Sarawak coast) and "Baram". Other examples examined are from Bakong (below Murudi) on the Baram River. All have red feet and the series is fairly constant although the Baram skins tend to be darker on the lower back and to have the black lateral

1. On a Collection of Mammals from the Lowlands and Islands of North Borneo", Bull. Raffles Mus., 6, 1931, pp. 1-82.

2. *Sciurus Caroli* Bonhote, Ann. Mag. Nat. Hist. (7) VII, 1901, p. 173.

stripe more obvious than those from Balingian. Mr. Banks<sup>1</sup> considers that this red-footed race is found "fairly pure in the country between the coast and the Rejang River, from as far west as Oya up to Miri and even Baram". In the latter district, however, *S. p. caroli* is very unstable and intergrades with *S. p. griseicauda*. Belaga on the upper Rejang River in Central Sarawak and Mt. Dulit also produce intermediates as well as examples fairly representing both races.

In his paper Mr. Banks has discussed the range of the *prevosti* forms occurring in the Baram district in detail: the main point of immediate interest is that he segregates a number of animals in the neighbourhood of the lower reaches of the Baram river as a definite "phase". This phase, he believes, occupies the swampy, lower Baram area from the sea up to Murudi Station.

As this "phase" is well-marked, fairly constant, dominant in a certain area, and has a definable geographic distribution there seems no reason why it should not be differentiated as a subspecies or geographical race. Its range has yet to be worked out in detail, but approximately it is the white space on Mr. Banks' map between the country in which *griseicauda* is dominant and the sea: typical examples of it are found as far north as Limbang where also, as at Trusan, occur animals intermediate between it and *griseicauda*. Somewhere or other, it seems certain that *banksi* must embrace the range of *S. p. suffusus*<sup>2</sup> but this latter is a most mysterious animal and still only known from the skins on which the original description was based: it is a very distinct form supposed to have come from the Tutong River in Brunei.

I have associated this subspecies with the name of Mr. E. Banks, Curator of the Sarawak Museum, who has been especially interested in the *prevosti* group of squirrels for several years.

#### *Tupaia dorsalis* Schlegel.

Specimens sent from localities between Mt. Poi in the extreme west of Sarawak and Mt. Murud in the north-east indicate that variation in the colour of the posterior upper parts is dependent on the age of the pelage, which when fresh is rather yellower and less reddish than when in "bleached" or worn condition. Only one race can be recognised for Sarawak and British North Borneo.

1. "The Forms of Prevost's Squirrel found in Sarawak", Proc. Zool. Soc., 1931, p. 1339.

2. *Sciurus baluensis suffusus* Bonhote, Ann. Mag. Nat. Hist. (7) VII, 1901, p. 175.

#### *Tupaia glis longipes* (Thos.).

The series from the Sarawak Museum is most instructive, and together with the material from north Borneo can be divided readily into two groups:—

- (1) From localities in the extreme west of Sarawak.—Pankalan Ampat (June); Lundu (June); Kuching (March, Sept., Oct.); and Samarahan (Oct.).
- (2) From localities in northern Sarawak and British North Borneo.—"Baram" (Feb.); Limbang (Jan.); Lio Matu and above this place in the Ulu Baram (April, Oct.); Rayoh in the gorge of the Padas River which runs into Brunei Bay (July); and various localities near Sandakan (July, August).

Without exception, animals of the second group can be separated from those of the first by the greyer, much less brightly coloured under side of the tail. As a series, they are also more olive and less reddish on the upper surface especially anteriorly, and the shoulder stripe is less deeply coloured. In a few cases these last given characters will not separate animals of the two groups and they may depend on the age of the pelage. It is just possible that all the differences noted above are due to the same cause but the dates on the labels do not support the view that there is any seasonable change of pelage. Animals with the greyest and freshest pelage are from Limbang (Jan.) and Lio Matu (April) while the reddest and most worn skins are from Samarahan in October but the series cannot be arranged evenly between these two extremes. For the present therefore, it seems advisable to recognise two races of this shrew in Sarawak separable on the colour of the under side of the tail and perhaps on the general tone of the pelage as well.

The duller, northern race is *T. g. longipes* Thos., which was collected by Low in "N. W. Borneo" and almost certainly came from the mainland opposite Labuan. On description the brighter, western race seems to be *T. g. salatana* Lyon, or very near it, and pending comparison of topotypes from south-east Borneo with specimens from west Sarawak *salatana* must be regarded as occupying all Borneo except the northern part: on the north western coast it extends northwards to at least Long. 110–111° E.

A specimen from Lawas, which on locality should be *longipes*, has the bright tail of *salatana* but it is, I think, immature.

Lyon<sup>1</sup> includes animals collected by Doria and Beccari in "Sarawak" under "*T. l. longipes*" but the specimens are preserved

1. Proc. U. S. Nat. Mus. 45, 1913, p. 79.

in alcohol, skeletons, or mounted, and therefore useless for colour examination: they probably belong to the form regarded as *salatana* above.

Fresh material is needed before the distribution of the races of this species in Borneo can be worked out in any detail. From Sarawak, animals in fresh pelage from the neighbourhood of Kuching, and specimens from anywhere between that place and the Baram River are especially required.

**Tupaia tana** (Raffles).

A beautiful series of this shrew from the neighbourhood of Kuching and other localities in the south-west of Sarawak confirms the suggestion made by Mr. Kloss and myself (based on the material in the Raffles Museum and the British Museum of Natural History) that *T. t. utara* Lyon, described from Mt. Dulit is not found throughout Sarawak but that the south-west or west of the State is occupied by an undescribed, very bright race.

**Tupaia tana nitida** subsp. nov.

*Diagnosis*.—Like *T. tana utara* of Mt. Dulit but brighter in colour. Forelimbs and sides of the body, particularly anteriorly, less brownish and more deeply red: nape darker and the pale areas on each side of the dorsal stripe darker; the dorsal stripe is therefore less conspicuous than in typical *utara*. The black patch on the lower back usually more conspicuous. Under side of the body more deeply coloured and less yellow. Tail less blackened.

*Type*.—Adult male, skin and skull (back of the skull cut away after the manner of bird-collectors) collected on Mt. Poi (500 ft.), west Sarawak, by Dr. E. Mjoberg on 17th Nov. 1923. Sarawak Museum No. A26. 327.

*Remarks*.—Examples of this race have been examined from Mt. Poi; Lundu; Samarahan; and Kuching, all in western Sarawak: all are separable from *utara* of Mt. Dulit; "Baram"; and Miri, on the characters given above.

Immature examples of *nitida* are comparatively dull and therefore rather like adults of *utara* but the under side of the tail is brighter. Examples from the neighbourhood of Kuching are not quite so distinct from *utara* as are those from the more remote Mt. Poi. On the upper parts some of the Kuching skins are very near to *utara* but the tail is always less blackened above and brighter below.

A specimen from Ulu Mukah in central Sarawak is *utara*.